

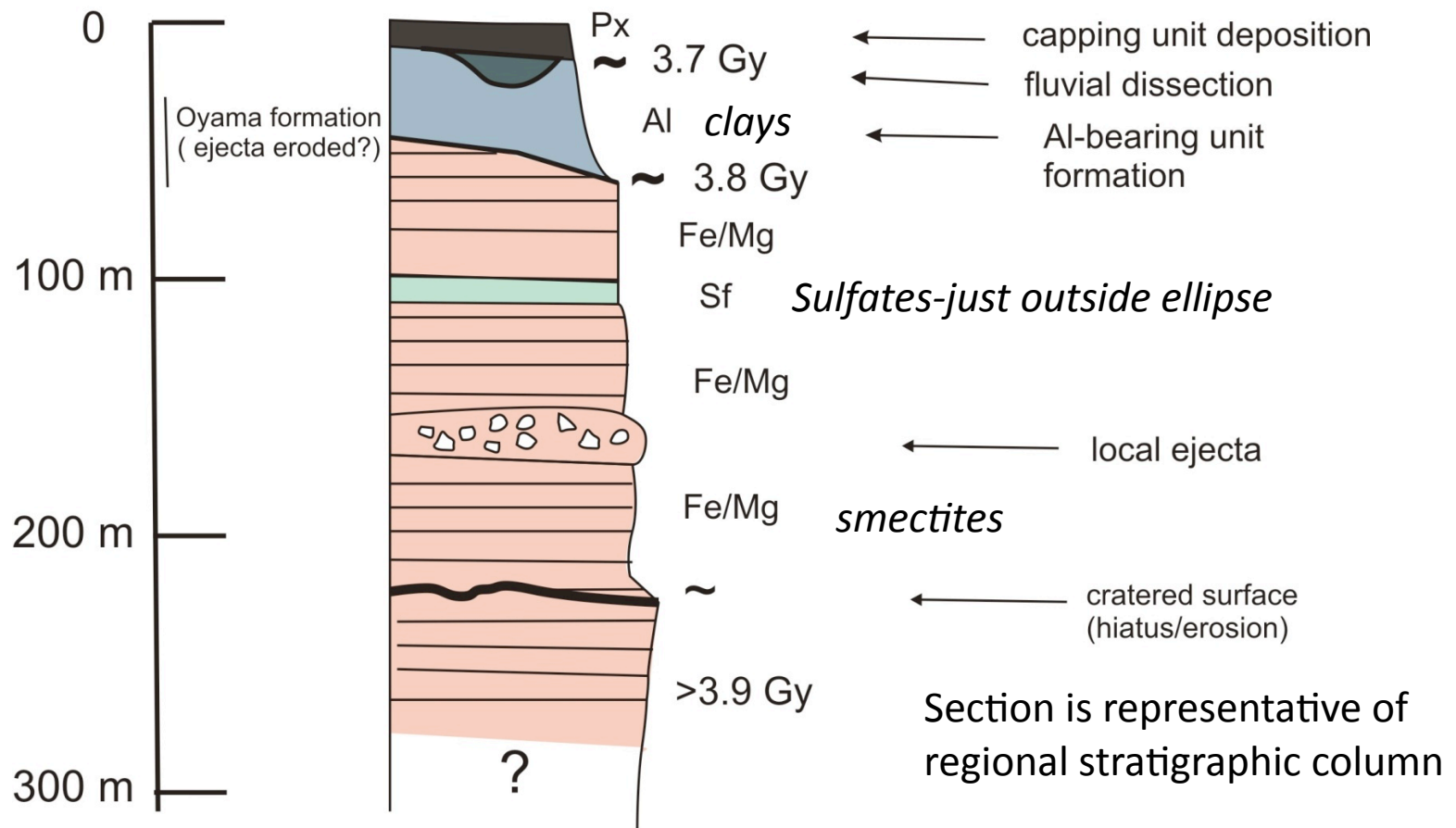
Summary of the Scientific Case for Mawrth Vallis

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Group

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Geologic Setting

Stratigraphic section at Mawrth Vallis Site



Scientific Merit

- Thick section of altered Noachian crust with predicted highest abundance of a variety of aqueous phases relative to three other sites
- Representative of regional-scale stratigraphic column
 - No evidence for extensive Oyama ejecta
 - Aqueous phases observed in many Noachian outcrops, e.g., exposed section south of Meridiani sedimentary rocks also shows evidence of Fe/Mg smectites and Al-bearing phyllosilicates
- Extensive alteration implies extensive surface and/or subsurface aqueous environments, key requirements for presence of habitable zones and life
- Provides an opportunity to explore, characterize, and better understand early (i.e., Noachian with active magnetic field) crustal formation and modification processes, including modification by water
 - Impact, volcanic, aeolian, and/or fluvial-lacustrine origins?
 - Meteoric or groundwater alteration?
 - Hydrothermal or fumarolic alteration?